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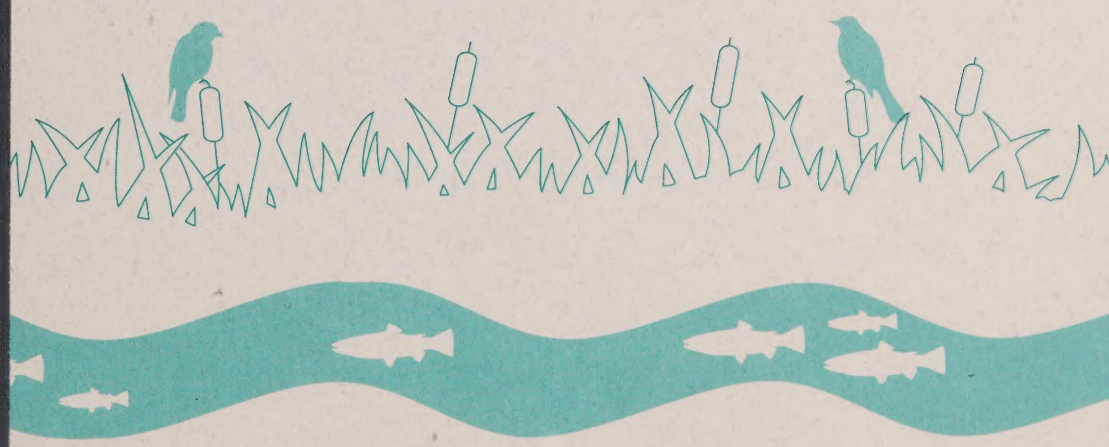
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FISH AND WILDLIFE HABITAT REHABILITATION PROGRAM Project Highlights







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FISH AND WILDLIFE HABITAT REHABILITATION PROGRAM Project Highlights





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**FISH AND WILDLIFE HABITAT
REHABILITATION PROGRAM
Project Highlights**



Author: Lesley Dunn, Environment Canada

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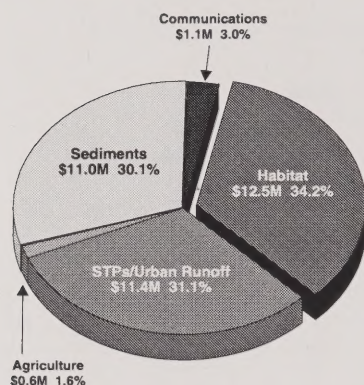
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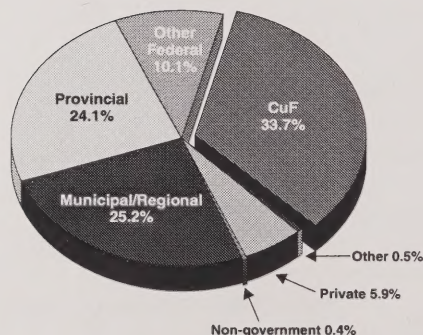
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INTRODUCTION

The objective of the Cleanup Fund's habitat rehabilitation projects is to improve the quantity and quality of aquatic habitat for fish and wildlife populations through an ecosystem approach.



Cleanup Fund resources by priority



Relative partnerships in Cleanup Fund projects

Initiated in 1990 as part of the federal Great Lakes Action Plan, the Cleanup Fund represents a significant part of Canada's commitment to restore the Great Lakes Basin Ecosystem as outlined in the 1987 Protocol to the Great Lakes Water Quality Agreement between Canada and the United States (GLWQA). The follow-up program, Great Lakes 2000, announced by the federal government in April 1994, confirmed that the Cleanup Fund's resources remain focused on demonstrating technologies and remedial methods for the restoration of impaired beneficial uses in Canada's 17 Great Lakes Areas of Concern (AOCs).

A new Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA) was signed by the federal and provincial Environment Ministers in July 1994. This agreement provides firm environmental targets for both the federal and provincial governments until the year 2000, and facilitates implementation of the GLWQA. In collaboration with concerned stakeholders, the Cleanup Fund is supporting the restoration of 60 per cent of impaired beneficial uses across all 17 AOCs, leading to the delisting of 9 AOCs by the year 2000. Collingwood Harbour was the first AOC to be delisted in November, 1994.

In each of the AOCs, joint Canada-Ontario technical teams are developing and implementing Remedial Action Plans (RAPs) in co-operation with the public, municipal governments and private sector companies to restore impaired beneficial uses. RAP Teams, together with Public Advisory Committees (PACs), foster partnerships between government, businesses and communities, generating public involvement, awareness and action at the local community level.

Priorities for the Cleanup Fund include rehabilitating fish and wildlife habitat, remediating contaminated sediment, controlling combined sewer overflows, stormwater and rural runoff, and optimizing wastewater treatment plants. To date, the Cleanup Fund has spent approximately \$37 million in support of over 150 projects. More than 160 government agencies, community groups and industries have also supported these projects with a further \$70 million. These resources provide employment and global market opportunities for environmental industries in Canada.

Loss of fish and wildlife habitat has been identified as an impaired beneficial use in most of Canada's 17 AOCs, and the new COA identifies rehabilitation of ecosystem function and structure of diverse, self-sustaining native biological communities as a priority for 12 AOCs, as well as other priority degraded areas in the Great Lakes Basin. The Cleanup Fund already supports projects in 13 AOCs and five other priority areas.

A full third of the Cleanup Fund's budget is spent on developing and demonstrating fish and wildlife habitat rehabilitation techniques through the implementation of RAP projects. Throughout the Great Lakes basin, from Thunder Bay on Lake Superior to Cornwall on the St. Lawrence River, the Cleanup Fund's resources provide opportunities for projects that encourage resource managers to build innovation into traditional management practices. Projects supported by the Cleanup Fund contribute to the COA's goal of increasing the extent of productive aquatic habitats in the Great Lakes basin, including AOCs. The target is to rehabilitate and protect 6000 hectares of wetland habitat and 600 km of riparian habitat.

The Cleanup Fund supports an ecosystem approach to habitat rehabilitation by encouraging managers to consider the habitat needs of both fish and wildlife species in their projects in order to support biologically diverse communities. In March 1994, the Cleanup Fund and its partners defined the requirements for implementing habitat rehabilitation projects that include non-game species, such as amphibians, reptiles, shorebirds, marsh birds and semi-aquatic mammals. A Great Lakes habitat rehabilitation resource manual is being compiled by Environment Canada and will be made available to habitat managers.

This report highlights many of the results and successes achieved by a selection of projects from 1990-1994. Short descriptions of each of the Cleanup Fund's habitat rehabilitation projects can be found in the Habitat Project Summaries section of this report.

FISH AND WILDLIFE HABITAT REHABILITATION PROGRAM

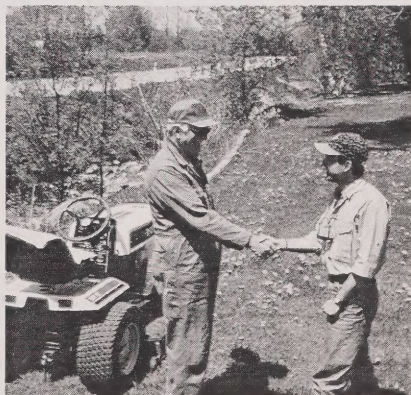
Fish and wildlife are important to Canadians. In a 1991 survey of the importance of wildlife to Canadians, over 90 per cent of residents reported participating in fish and wildlife-related activities, spending more than \$8 billion on activities such as bird watching and feeding, nature photography, fishing, hunting and trapping. Diverse and sustainable habitats are vital to maintaining productive fish and wildlife populations, as well as ecosystem health.

Many fish species require a gravel stream bottom on which to spawn, as well as protective nursery, feeding and shelter areas. Waterfowl require breeding, staging and nesting areas of both open water and emergent aquatic vegetation. Amphibians need ponds or wetlands in proximity to forested areas to support their aquatic and terrestrial stages. Reptiles require logs for basking and soft pond bottoms for hibernating. These are just a few examples of the many

Impairment of beneficial use(s), as defined in the GLWQA, means a change in the chemical, physical or biological integrity of the Great Lakes System sufficient to cause:

- Restrictions on fish and wildlife consumption
- Tainting of fish and wildlife flavour
- Degradation of fish and wildlife populations
- Fish tumors or other deformities
- Bird or animal deformities or reproduction problems
- Degradation of benthos
- Restrictions on dredging activities
- Eutrophication or undesirable algae
- Restrictions on drinking water consumption, or taste and odor problems
- Beach closings
- Degradation of aesthetics
- Added costs to agriculture or industry
- Degradation of phytoplankton and zooplankton populations
- Loss of fish and wildlife habitat

Diverse and sustainable habitats are vital to productive fish and wildlife populations and ecosystem health.



Landowner contact builds partnerships

Photo: L. Dunn

Causes of habitat degradation:

- Filling and draining of wetlands
- Hardening of shorelines for harbours, marinas, and other development
- Removal of in-water and on-land cover
- Soil erosion from land-based development
- Alteration of natural channels
- Control of water levels

Many innovative techniques are being given an opportunity for development, application and demonstration through the Cleanup Fund.



Metro Toronto's innovative snake hibernacula
Photo: Metro Toronto and Region Conservation Authority

types of habitat which have historically been degraded and destroyed around the Great Lakes, especially in Areas of Concern. In 1990, the Great 2000 Lakes Cleanup Fund identified rehabilitation, restoration, creation and protection of habitat as one of its top priorities.

The objective of the Cleanup Fund's habitat rehabilitation projects is to demonstrate methods for improving the quantity and quality of aquatic habitat for fish and wildlife populations. The various methods include: rehabilitation, enhancement and re-creation of coastal wetlands; softening of hard shorelines; island creation; habitat diversification; and rehabilitation of riparian habitats, including tributaries.

To date, the Cleanup Fund has supported 45 habitat rehabilitation projects. Federally Environment Canada's Environmental Conservation Branch and Fisheries and Oceans have played a major role in many of the projects. Other lead agencies include the Ontario Ministries of Natural Resources and Environment and Energy, Conservation Authorities and local stakeholders.

Techniques for habitat rehabilitation have not been perfected, and are not always available "off the shelf". Projects proceed based on the best information available. A great number of innovative rehabilitation techniques are being developed, applied and demonstrated through the Cleanup Fund's support. Monitoring is a significant component of all of the projects in order to learn which techniques work and which do not, the reasons for success, and to share the successful techniques with other habitat managers. The results highlighted in this report illustrate important successes already achieved by the Cleanup Fund.

Habitat rehabilitation is labour intensive work, and volunteer support for these projects through planting trees and shrubs, debris cleanup, log jam removal, fence installation and monitoring of wildlife populations is invaluable. Apart from being labour intensive, rehabilitation is also a diverse and technical field, drawing on the expertise of hydrologists, biologists, engineers and construction firms. The projects have generated a multitude of commercial and employment opportunities for Canadian companies from environmental assessment, pre-construction monitoring, design and engineering, through construction, fabrication, installation and post-construction monitoring.

ENVIRONMENTAL RESULTS

Working with its many partners, the Cleanup Fund has successfully demonstrated several original techniques for habitat rehabilitation. Through publications like this, fact sheets, manuals and workshops, the results of these habitat rehabilitation demonstrations will continue to be transferred to habitat rehabilitation practitioners throughout the Great Lakes basin and internationally.

The achievements of these projects are significant and include:

- ✓ Donation of 5,000 hours of labour by the Thunder Bay community, as well as funds, supplies and equipment, to remove 55.5 tonnes of garbage along 125 km of shoreline.
- ✓ Construction of a one-of-a-kind ecological breakwall that has improved aesthetics and maximized habitat diversity in Nipigon Bay, resulting in lake trout and lake whitefish spawning.
- ✓ Restriction of 26 km of streambank from livestock access, and retirement of 129 hectares of land from agricultural use, resulting in improved water quality, increased fish and wildlife habitat and economic benefits to farmers throughout Severn Sound.
- ✓ Rehabilitation of spawning areas in Collingwood Harbour's, Black Ash Creek resulting in observation of 23 young-of-the-year rainbow trout compared to only one prior to rehabilitation.
- ✓ Initiation of a comprehensive rehabilitation project for Rondeau Bay that takes a watershed approach in addressing problems caused by land use practices.
- ✓ Greater fish biomass, and more desirable species at newly created underwater habitat structures in Hamilton Harbour.
- ✓ Increased numbers and diversity of fish by breaching a barrier between a stocked trout fishing pond and a Toronto Island lagoon.
- ✓ Successful reproduction of 250 common tern chicks for four consecutive years on artificial nesting rafts in Toronto Harbour.
- ✓ Construction of an artificial island with reefs for fish on the St. Lawrence River at Cornwall.



Volunteers building osprey nesting platform

Photo: P.J. Ewins

BASINWIDE

In 1993, a project was initiated to facilitate restoration of viable, self-sustaining breeding populations of ospreys, bald eagles and peregrine falcons along the shorelines of the Great Lakes. Current population recovery of these raptors at the top of the food web is likely being hampered by a shortage of suitable natural nesting sites. Through this project, 21 osprey and four bald eagle platforms were installed in prime locations along the shores of Lake Erie, Lake Ontario and southern Georgian Bay. To date, at least six osprey platforms and two bald eagle platforms have already been occupied.

The bald eagle has recently been proposed as an indicator of aquatic ecosystem health under the Great Lakes Water Quality Agreement. In areas where bald eagles do not yet occur, ospreys and peregrine falcons are useful surrogates with respect to indicators of ecosystem health. Interest in this project has been generated throughout North America and monitoring of the platforms will continue to evaluate the success of the technique.

Partners:

Canadian Heritage

City of Oshawa

Environment Canada - Environmental Conservation Branch

General Motors of Canada Ltd.

Halton Region Conservation Authority

Hawk Cliff Raptor Station

Ontario Hydro

Ontario Ministry of Natural Resources

Royal Botanical Gardens



Adult osprey on nest with chicks

Photo: J.M. Richards

LAKE SUPERIOR

***Communities at work:
5,000 hours of labour
donated -- 55.5 tonnes of
garbage collected.***



Cleanup crew for Wake Up To Your Waterfront
Photo: Lake Superior Programs Office

Species using new habitat at McKellar River:

northern pike	walleye
yellow perch	suckers
sticklebacks	crayfish
Canada geese	great blue herons
belted kingfishers	sandpipers



McKellar River embayment
Photo: Lake Superior Programs Office

Thunder Bay

One of the Cleanup Fund's first habitat rehabilitation projects is located in Thunder Bay. Rehabilitation of aquatic habitats at five tributaries within the city of Thunder Bay is underway. Public support has made an important contribution to this project, in particular through a PAC community cleanup initiative called "Wake Up To Your Waterfront" which covered 125 km of Thunder Bay waterfront. Over 5,000 hours of labour were donated by the community and 55.5 tonnes of garbage (not including wood) were collected. Local businesses and industries also donated funds, supplies and equipment towards the event. A video and manual have been distributed by the International Joint Commission to other Great Lakes AOCs to assist in organizing similar cleanup events.

In the winter of 1993, a 205 m long crescent-shaped island was constructed in the harbour, near McVicar Creek. The island is designed to foster the natural development of a wetland and restore diversity by providing a quiet zone protected from powerful Lake Superior waves. About 25,000 tonnes of quarry stone were used in the construction of the island which incorporates underwater features such as rock shoals, sediment traps and pockets of top soil for terrestrial plants. A wetland should establish naturally at the site. In just one season, three species of aquatic plants have already colonized the inner bay, and fish and waterfowl have started to use the new habitat. To encourage public participation, support and education, a "Name the Island" contest was held and the name "Sanctuary Island" was chosen.

Prior to the 1970s, dredging for commercial shipping reduced the once productive McKellar River to a straight, deep channel with a narrow littoral zone. Today, two shallow embayments, each about 1.5 hectares have been excavated to create three hectares of critical habitat for spawning, nursery, shelter and food production for fish species such as northern pike, walleye, yellow perch and smallmouth bass. Additional habitat for reptiles and amphibians will be provided by adding basking logs, planting aquatic plants and creating shallow depressions in adjacent wooded areas for spring-time breeding.

Partners:

City of Thunder Bay
Fisheries and Oceans Canada
Lakehead Region Conservation Authority
Lakehead University
North Shore Steelhead Association
Ontario Ministry of Environment and Energy

Ontario Ministry of Natural Resources
Ontario Ministry of Northern Development and Mines
Ontario Ministry of Tourism, Culture and Communications
Thunder Bay Field Naturalists
Thunder Bay Salmon Association

Nipigon Bay

By using the ecosystem approach, the Marina in the Town of Red Rock demonstrates that a breakwall can function both structurally and ecologically. The Nipigon Bay RAP Team and PAC have worked closely with Red Rock's Waterfront Development Steering Committee to incorporate habitat components into the design of the breakwall. Public access to Nipigon Bay is provided, aesthetics have been improved and additional recreational opportunities for marina users, such as fishing spots and a walking trail, have been created. Habitat diversity is maximised by creating more edge and constructing a littoral zone on the inside of the breakwall through the addition of logs and boulders, root wads and log crib shelters. Two islands complete with vegetation and underwater structures have been constructed as part of this project. Since building the breakwall, spawning by lake trout and lake whitefish has been documented. A manual describing the technique of incorporating habitat into a breakwall will be produced to share valuable information with other communities throughout the Great Lakes basin. The results will be applicable to future marina developments and the construction of a variety of structures designed to harden shorelines for erosion control or storm protection.



Red Rock Marina

Photo: G. Jackson

The first of its kind -- an ecological breakwall.

Partners:

Domtar Packaging

Fisheries and Oceans Canada

Ontario Ministry of Environment and Energy

Ontario Ministry of Natural Resources

Ontario Ministry of Northern Development and Mines

Red Rock Fish and Game Club

Township of Red Rock



Thunder Bay's Sanctuary Island

Photo: G. Jackson

LAKE HURON

Demonstrated benefits to farmers as well as fish and wildlife habitat.

Partners:

Agriculture and Agri-Food Canada

jobsOntario

Landowners

Midland Rotary Club

Ontario Ministry of Agriculture, Food and Rural Affairs

Ontario Ministry of Environment and Energy

Ontario Ministry of Natural Resources

Tiny Township

Local agricultural community, schools and volunteer groups such as Big Brothers, Boy Scouts, Girl Guides, and Ducks Unlimited



Before rehabilitation: free cattle access to stream

Photo: Severn Sound Tributary Rehabilitation Project



After rehabilitation: fence restricts access and banks have re-vegetated

Photo: Severn Sound Tributary Rehabilitation Project

Severn Sound

Since 1991, elevated phosphorus levels, bank erosion and loss of fish and wildlife habitat caused by agricultural practices have been addressed through the rehabilitation of six tributaries to Severn Sound: the Wye, Hog, Coldwater, Sturgeon and North Rivers, as well as Copeland Creek.

Through a number of fencing projects and the creation of alternative watering sources, a total of 26 km of streambank has been protected from livestock access. More than one-quarter of the nearly 5,000 livestock with access have been restricted from the stream areas. A further 129 hectares have been retired from agricultural use. Streambanks have been stabilized through the placement of rip-rap (a layer of stone as armour) as well as tree and shrub plantings by hundreds of volunteers to create buffer zones. In addition, debris and a number of log jams in the various tributaries have been removed to improve water flow.

Rehabilitation activities have improved both aquatic and terrestrial habitat for fish and wildlife in Severn Sound. Moreover, because of agricultural land retirement, wildlife corridors have been established through neighbouring projects. Water quality has improved due to the reduction of phosphorus loadings through erosion control, livestock access restriction and creation of buffer zones. There are also valuable benefits to the farmers and landowners participating in these activities. According to the farmers, the project has demonstrated that livestock health problems have decreased and agricultural land values have been enhanced.

Collingwood Harbour

In 1992, a tributary rehabilitation and erosion control project was initiated for Black Ash Creek, the largest tributary to Collingwood Harbour. Various innovative and intensive rehabilitation activities have been performed. Erosion and slumping of streambanks have been controlled at 13 sites, along more than 600 m of stream, thereby controlling suspended sediment loadings from these sites. At an intensively rehabilitated rainbow trout spawning area, 23 young-of-the-year rainbow trout were found, compared to only one prior to rehabilitation. There was also an increase in the numbers of common shiner and white sucker at this site. Rainbow trout spawning habitat, previously buried under 20 cm of sediment, was re-exposed over a 400 m reach of stream, and eight pairs of rainbow trout used this habitat in the spring of 1993.

Bio-engineering, a technique that uses live plants instead of unnatural or hard material, has been used to stabilize streambanks at many of the sites along the main branch of Black Ash Creek. This technique may provide better habitat and long-term stability than traditional rip-rap for erosion control. At one steep clay slope, Carolina poplars were planted to control gullying and sediment transport from erosion. The planting was followed by the installation of bio-engineered willow fascine terraces and drains. The fascines reduce runoff velocity and provide micro-habitats for plant colonization. A bio-engineered cribwall 2 m high and 40 m long made of live shrub willow and dogwood cuttings was used at another eroding site.

Further down Black Ash Creek, old abandoned beaver dams and tree falls had diverted the creek from its original channel to an eroding, unstable channel. To rehabilitate the site, the original channel was excavated and stabilized using a pre-germinated seed mix in a jute channel liner. Excellent plant growth was attained to stabilize the banks. Large rocks were placed in the channel to prevent downcutting. When the original channel was fully stabilized, stream flow was re-directed into this channel.

Collingwood Harbour was the first AOC to be delisted. The intensive rehabilitation activities along Black Ash Creek combined with other efforts by the Cleanup Fund and its partners helped to make this possible. Projects included the removal of contaminated sediment, optimization of the sewage treatment plant, rehabilitation of habitat in the harbour, building an EnviroPark and the Greening of Collingwood project.

Partners:

Collingwood Collegiate Institute

Collingwood Harbour RAP

Collingwood Rotary Club

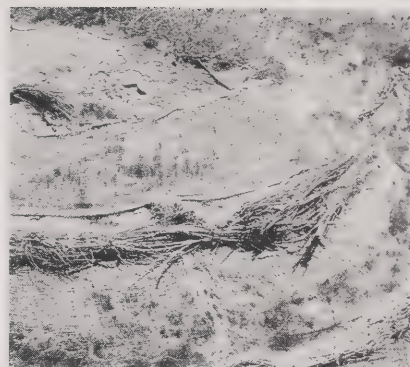
Environment Canada - Partners Fund

Fisheries and Oceans Canada

Local landowners and volunteers

Nottawasaga Valley Conservation Authority

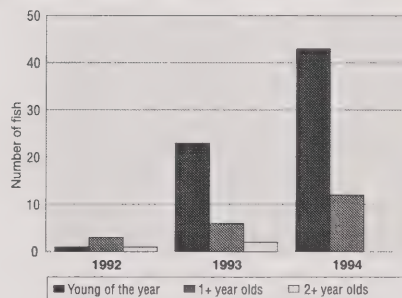
Ontario Ministry of Agriculture, Food and Rural Affairs



Fascine terraces and drains

Photo: L. Dunn

Innovative bio-engineering may provide better habitat and long-term stability.



Three years of rainbow trout survey results

Ontario Ministry of Environment and Energy

Ontario Ministry of Natural Resources

Town of Collingwood



Before rehabilitation and bank stabilization

Photo: R. Grillmayer



After rehabilitation - good vegetation growth stabilizes the banks

Photo: R. Grillmayer

LAKE ERIE

Rondeau Bay

Development of a community-based action plan for the rehabilitation of the Rondeau Bay watershed started in 1993. Issues and opportunities were discussed by all public interest groups and citizens. The goal is to facilitate and integrate land use activities with programs and funding initiatives to rehabilitate, increase, secure and protect fish and wildlife habitat in the Rondeau Bay watershed.

Public consultation and existing information have been incorporated into a Draft Action Plan. Information needed to prioritize sites for rehabilitation and monitoring have been developed, including a geographic information system and database. Investigation of the coastal processes and hydraulic features affecting the bay will provide insight into the evolution of the sand spit barrier beach, tributary deltas, and the opening to Rondeau Bay.

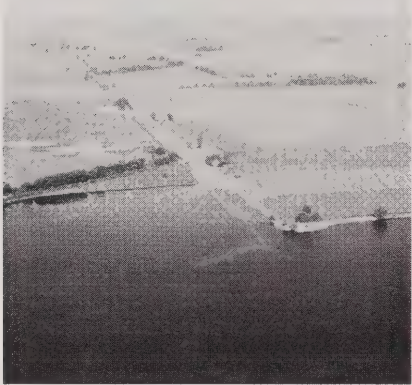
Wetland evaluation records of the northwest shore of Rondeau Bay have been updated with detailed field mapping of the marsh boundary and plant communities. Survey routes for baseline monitoring of marsh birds and amphibians have been established and one season of marsh birds data collected. Through a landowner agreement under Project Tree Cover, a total of 1,480 Carolinian and other native tree species were planted in the spring of 1994. Three hundred pairs of *Galerucella* beetles were released at one site in Rondeau Bay to evaluate their effectiveness as a bio-control agent to hinder the growth and spread of the invasive plant, purple loosestrife. Once the action plan is finalized, implementation of recommendation actions will commence.



The black tern is one of the many significant species found in Rondeau Bay

Photo: J.M Richards

Watershed approach to habitat rehabilitation.



Typical land use in the Rondeau Bay watershed

Photo: B. Colman

Partners:

Atlas of the Breeding Birds of Ontario
Atlas of the Mammals of Ontario
Environment Canada - Environmental Conservation Branch
Environment Canada - Environmental Quality Branch
Lower Thames Valley Conservation Authority
Ontario Herpetofaunal Summary
Ontario Ministry of Environment and Energy
Ontario Ministry of Natural Resources
Ontario Rare Breeding Bird Atlas
Project Tree Cover
Rondeau Provincial Park
University of Guelph



Remnant habitat of the Rondeau Bay watershed

Photo: B. Colman

LAKE ONTARIO

Hamilton Harbour

Rehabilitation of fish and wildlife communities in Hamilton Harbour is a three part process: first, the water quality stresses on the harbour will be reduced, next rehabilitation and creation of suitable fish and wildlife habitat will occur, and finally, fish and wildlife populations will be restructured. Activities are taking place at many locations throughout the harbour. Implementation of the entire project is expected to take about 20 years.

At Cootes Paradise, rehabilitation of the 250 hectare wetland has begun. Planting experiments were conducted to determine the most efficient method of planting and protecting aquatic vegetation. Plants were originally obtained from a commercial nursery; however, for economic and ecological reasons, donor plants from the marsh and its watershed were preferred. The Royal Botanical Gardens (RBG) constructed an aquatic plant nursery in 1993 and has refined propagation techniques for 6-8 species of native aquatic plants. In all, the RBG will grow 300,000 plants. The Hamilton and Halton Region Conservation Authorities completed inventories of their wetlands which will be used as seed sources for the nursery. Through a Bay Area Restoration Council outreach program, RBG and McMaster University provided school children with seeds, potting materials and instructions for growing aquatic plants. This program is expected to contribute about 10,000 plants. In order to protect the new plants from the adverse effects of carp, an innovative barrier is under construction at the mouth of Desjardins Canal. Within the marsh, the commercial "Aqua Dam", a movable, water-filled bladder, is being evaluated for its ability to control water levels and turbidity on a temporary basis during the sensitive early development of the plants.

The marshes at Grindstone Creek are the only spawning sites used by northern pike in Hamilton Harbour. To improve the spawning and nursery habitat, a number of structures were installed. These included a water level control structure to maintain minimum water levels for northern pike fry during May and June, beaded floodplain channels to increase the amount of edge, vegetated islands for edge and wildlife nesting habitat, and carp control to improve water clarity and increase underwater vegetation. More than 120 northern pike used the marsh in the spring of 1993. The beaded floodplain channels were quickly colonized by a variety of aquatic plants, and carp control on the upper spawning marsh has improved water clarity and increased submerged vegetation.

Along the shore of Harbourfront Park, 3.5 km of littoral fish habitat were enhanced. A number of shoreline slopes and ledges with various sized gravel and rock substrates were created to increase habitat diversity and provide spawning and nursery sites for bass and sunfish. In addition, 45 fish habitat structures to improve habitat diversity and provide deepwater habitats for bass and catfish were installed in 3 to 6 m of water near Harbourfront Park. In 1993, fish biomass near the modules was much greater than at

Nursery established to grow native aquatic plants from local sources.



Aquatic plants at RBG Nursery

Photo: Fish and Wildlife Habitat Rehabilitation Project

Partners:

Brock University

Burlington Boating and Sailing Club

City of Burlington

City of Hamilton

Environment Canada - Environmental Conservation Branch

Environment Canada - Partners Fund

Fisheries and Oceans Canada

Halton Region Conservation Authority

Hamilton Harbour Commissioners

Hamilton Naturalists

Hamilton Region Conservation Authority

LaSalle Marina Association

McMaster University

Ontario Ministry of Environment and Energy

Ontario Ministry of Natural Resources

Royal Botanical Gardens

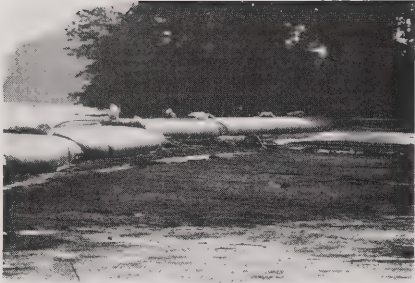
Waterfront Regeneration Trust

A large number of private and corporate citizens through contributions to Project Paradise



Pike spawning channels

Photo: Fish and Wildlife Habitat Rehabilitation Project

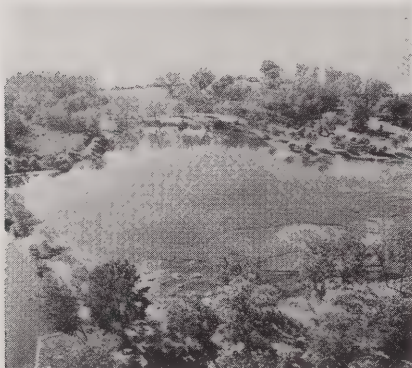


Aqua Dam controlling water level for planting
Photo: Fish and Wildlife Habitat Rehabilitation Project

Adopt-a-Pond Program recognizes innovative habitat creation techniques.



Before: Toronto Island stocked trout fishing pond
Photo: Metro Toronto and Region Conservation Authority



After: Enhanced habitat at Toronto Island
Photo: Metro Toronto and Region Conservation Authority

adjacent control sites. At the control sites, the most abundant species were spottail shiners and brown bullhead, while the structures attracted pumpkinseed sunfish, yellow perch, smallmouth bass, and black crappies.

Metro Toronto and Region

The Metro Toronto and Region Conservation Authority has embraced the ecosystem approach, and initiated a number of habitat rehabilitation demonstration initiatives at various waterfront locations.

At Colonel Samuel Smith Waterfront park, a narrow, deep pond, linked to Lake Ontario through a culvert, was excavated and a 3.6 hectare wetland was created. The shoreline was altered to create mudflats and seasonally flooded areas of shallow water, with deeper isolated areas to provide refuge for young-of-the-year fish, reptiles and amphibians from predatory fish. Three bass spawning shoals and three fish habitat structures were also created in the wetland. About 3 m offshore, adjacent to the wetland outlet, an underwater reef was constructed to provide vertical relief. Logs and stumps were placed in the wetland to provide shelter for fish and basking areas for reptiles. Turtles and frogs will be able to use the soft substrates within the wetland and on the island for hibernation and nesting. Fish-eating birds such as herons, gulls and terns are already attracted to the area by forage fish in surrounding waters. Two hibernacula, places for snakes to hibernate, were created south of the wetland. In 1994, the Cleanup Fund and its partners received an Adopt-a-Pond Award from the Metro Toronto Zoo in recognition of the innovative fish and wildlife habitat creation techniques used. This is only the second time that this award has been presented to a group other than a school.

Historically, the Toronto Islands fish community has been negatively affected by urbanization and alteration of natural island structure. Wetland filling has destroyed the spawning, nursery and feeding areas of northern pike. To provide the resident Toronto Islands fish community with access to valuable habitat, a barrier-berm between the stocked trout fishing pond and the Toronto Island lagoon was breached at three points. The habitat was further enhanced by creating shallow channels, in the form of ten 2.5 m wide projections into the pond. The base of the projections and adjacent shoreline were densely planted to provide leaf litter, additional wildlife habitat, and to restrict public access. After breaching, a significant increase in the number of species, individuals and fish biomass was observed. Piscivorous fish biomass rose by 200 per cent, and other fish biomass by 3,000 per cent. Once

appropriate plant cover is established, it will take several seasons before significant northern pike spawning activity is seen; however, results show that many additional fish species are already using the new habitat.

Common terns at the Toronto Waterfront have been declining sharply in numbers due to encroachment of their nesting areas at the Eastern Headland by nesting gulls and vegetation. Since 1990, suitable habitat has been provided for the terns by installing and monitoring four artificial nesting rafts at Tommy Thompson Park on the Leslie St. Spit. Over 170 fledglings were produced in the first year, and more than 250 in each of the following years. In 1993, three permanent rafts (to remain in place over winter) were constructed and installed. Snow fencing was suspended from the rafts to create artificial reefs for use by fish. These "reef rafts" provide shelter for fish as well as nesting habitat for birds. In 1993, eleven species of fish were found under the reef rafts, nine under the old rafts, and three in the open water near the reef rafts.



Planting water lilies at new Col. Sam Smith wetland
Photo: Metro Toronto and Region Conservation Authority

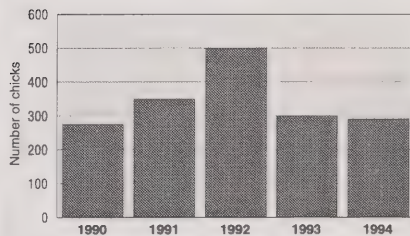
Fish biomass increased by up to 3,000 per cent.



Common tern reef raft
Photo: H. Blokpoel



Wetland under construction at Colonel Samuel Smith Park
Photo: Metro Toronto and Region Conservation Authority



Number of common tern chicks fledged from rafts

Partners:

Environment Canada - Environmental Conservation Branch

Metro Toronto and Region Conservation Authority

Municipality of Metropolitan Toronto

Ontario Ministry of Environment and Energy

Ontario Ministry of Natural Resources

ST. LAWRENCE RIVER



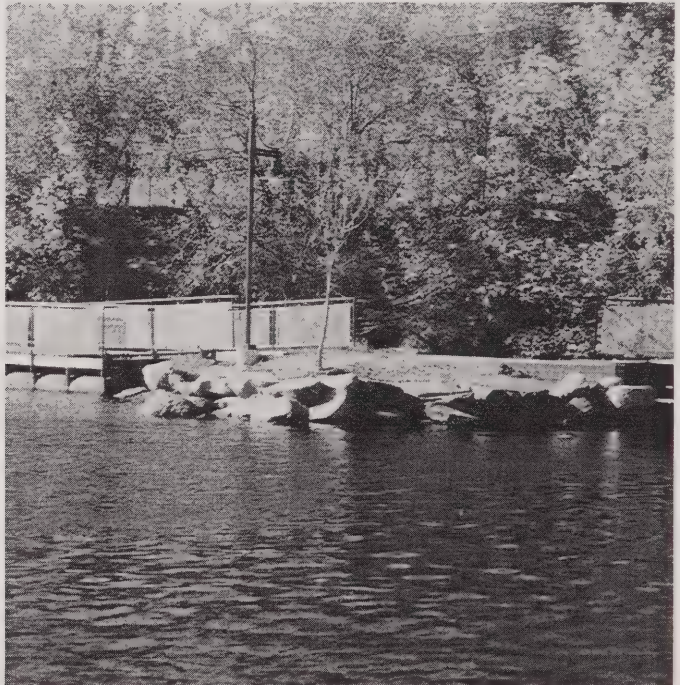
Fish habitat reef under the new island
Photo: M. Eckersley

Incidental habitat creation through the ecosystem approach.

Partners:
City of Cornwall
Ontario Ministry of Natural Resources
Raisin Region Conservation Authority

Habitat deficiencies along 6 km of the Cornwall waterfront have been investigated and appropriate remedial measures to restore aquatic habitat diversity have been designed. In 1993, an artificial island was constructed to provide underwater structural diversity for fish. Under the island, a 250 square metre underwater reef was built along with two reef offshoots into deeper water. The 90 square metres of island above the water will be landscaped with native, low-growing, berry-producing shrubs such as red osier dogwood and nannyberry to attract wildlife. Target fish species include forage fish, smallmouth bass, yellow perch and walleye. This year's monitoring will determine the specific environmental gains of the project.

The project illustrates the concepts of the ecosystem approach and incidental habitat creation. The island was initially intended as part of a bike path for recreation purposes. By adding habitat components to the project through construction of the reef and landscaping the island with wildlife-attracting shrubs, the RAP took advantage of an opportunity to incorporate habitat considerations into a development project and significant habitat gains were made.



Bike path and island
Photo: M. Eckersley

CONCLUSION

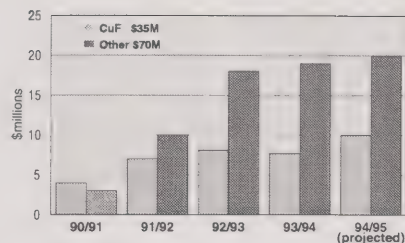
Significant benefits to fish and wildlife habitats, biodiversity and water quality in the Great Lakes basin have already been achieved through projects supported by the Cleanup Fund and numerous partners. In Collingwood Harbour, habitat rehabilitation combined with other projects supported by the Cleanup Fund has led to the first delisting of an AOC.

Habitat rehabilitation is a long-term venture. Wetlands created today may take five to ten years to develop as functional habitats. We must be patient, knowing that we are investing in projects with few immediate returns. Monitoring programs are needed to assure the long-term success and determine the appropriateness of the techniques used. Furthermore, it must be recognized that natural processes of succession will continue to shape and change these habitats.

The Cleanup Fund has been instrumental in initiating many habitat rehabilitation projects in the Great Lakes basin. By providing seed money to innovative projects, the Cleanup Fund has leveraged two dollars in partnerships for each dollar invested. Furthermore, it has provided invaluable opportunities to demonstrate and refine new techniques. The Great Lakes 2000 Cleanup Fund's projects are leading the way in habitat rehabilitation innovation. The knowledge gained from demonstrations is transferred to other habitat practitioners, resulting in improved techniques for larger scale projects.

There is a strong economic case to be made for rehabilitation, beyond the environmental benefits that fish and wildlife habitat rehabilitation provides -- increasing biodiversity, providing migration and staging areas, climate stabilization, nutrient cycling, groundwater recharge and aesthetics. The economic value of wetland systems is thought to be substantial in terms of flood and erosion control, nutrient assimilation and food chain support functions. In addition, the sizable investment in habitat rehabilitation generates employment and income, and provides the environmental amenities for future economic opportunities and investment. For example, in 1991, over 90 per cent of Ontario residents participated in spending an estimated \$2 billion on various fish and wildlife-related activities.

A top priority of the Great Lakes 2000 Cleanup Fund will continue to be rehabilitating and creating habitats to sustain healthy and diverse fish and wildlife populations through the use of innovative techniques and co-operative partnerships. A substantial amount of community involvement has been generated at the local level. Since habitat rehabilitation is only one of the Fund's priorities, the program is comprehensive in its approach to rehabilitating the Great Lakes Basin Ecosystem.



Building partnerships

The Cleanup Fund has leveraged \$2 for each \$1 invested in habitat rehabilitation.



Bio-engineered cribwall after construction
Photo: R. Grillmayer



First years growth on the cribwall (see photo above)
Photo: R. Grillmayer

FOR FURTHER INFORMATION:

Great Lakes 2000 Cleanup Fund

Environment Canada

P.O. Box 5050

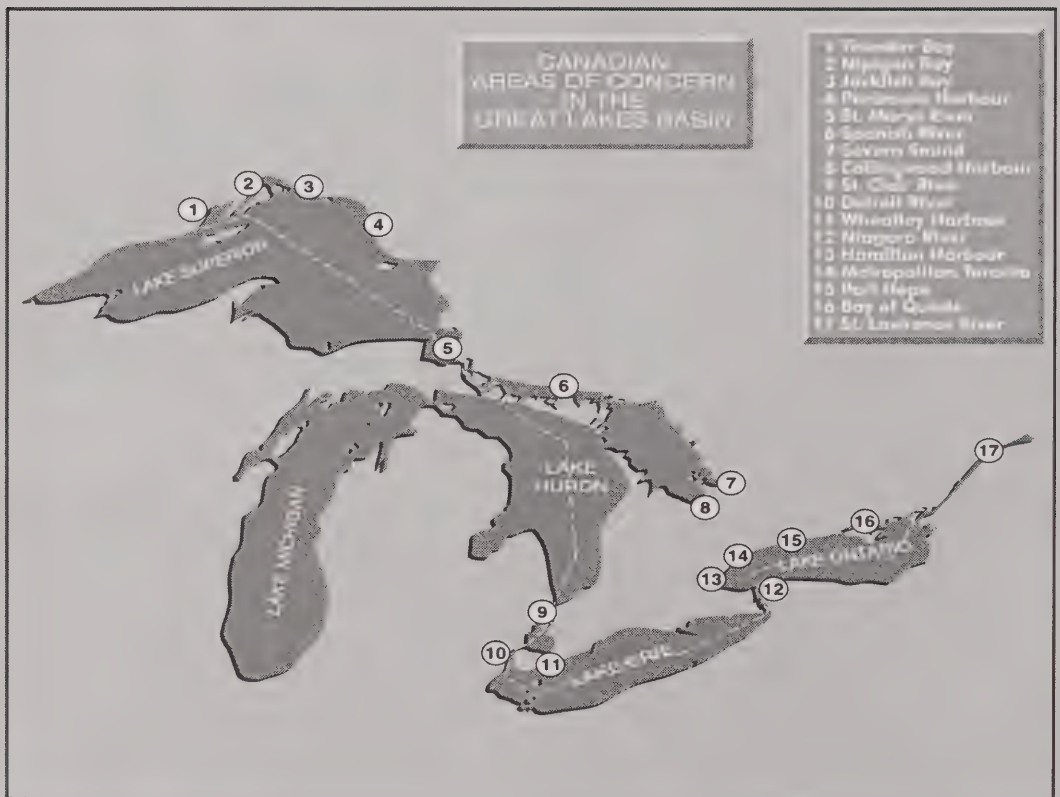
867 Lakeshore Road

Burlington, Ontario

L7R 4A6

Phone: (905) 336-6276

Fax: (905) 336-6272



HABITAT PROJECT SUMMARIES

BASINWIDE

Wildlife, Habitat and Wetlands Project Coordination

Nancy Patterson 416-954-5620

In order to restore beneficial uses in the Great Lakes Basin, this project will provide a coordinated approach to ensure that wildlife needs are well-expressed in all Cleanup Fund habitat projects. A multi-stakeholder approach, similar to that in AOCs, will be applied to other priority areas. Specific projects include the delivery of an ecological monitoring protocol, volunteer based marsh monitoring of marsh birds and amphibians, and habitat rehabilitation demonstrations for non-game species.

Restoring Breeding Populations of Raptors

Peter Ewins 416-973-6000

The objective of this project is to facilitate restoration of viable, self-sustaining breeding populations of Ospreys, Bald Eagles, and Peregrine Falcons along the shorelines of the Great Lakes. In 1993, 21 Osprey and 2 Bald Eagle platforms were installed in prime locations, along the shores of Lake Erie, Lake Ontario, and southern Georgian Bay. Environment Canada's Environmental Conservation Branch, Ontario Ministry of Natural Resources, Parks Canada, Ontario Hydro, Halton Region Conservation Authority, City of Oshawa, General Motors, Hawk Cliff Raptor Station, and Royal Botanical Gardens are supporting this project.

LAKE SUPERIOR

THUNDER BAY

Restoring Habitat to the Bay

Jake Vander Wal 807-768-1854

This project will contribute to the rehabilitation of the aquatic ecosystem by increasing the diversity and amount of habitat in the various tributaries to Thunder Bay. Fisheries and Oceans Canada, the Ontario Ministries of Natural Resources, Environment and Energy, Northern Development and Mines, and Tourism, Culture and Communications, the City of Thunder Bay, Lakehead Region Conservation Authority, Thunder Bay Salmon Association, Northshore Steelhead, Lakehead University and Thunder Bay Field Naturalists are funding this project.

Current River - Lost walleye spawning habitat was improved by clearing debris and replacing it with gravel, cobble, and boulders. Access to the upper river's productive habitat by spawning rainbow trout was restored through the construction of a fish ladder and step pools at the Boulevard Lake dam.

Neebing-MacIntyre Floodway - In order to re-create the lost littoral or nearshore zone to provide shelter, food, and shoreline diversity, four 30 m by 2 m embayments were excavated into the banks of the floodway.

McVicar Creek - Over 120 m of stream profile were recreated through sediment removal and replacement of gravel and boulders. A 205 m long crescent-shaped island was built in the harbour which will foster the natural development of a wetland.

Lower Kaministiquia River - Banks have been stabilized, shoreline habitat improved, and a park for public access created. Design modifications for habitat improvements saved about \$400,000.

McKellar River - Two shallow embayments were excavated to provide critical habitat for spawning nursery, shelter and food production for fish, reptiles, amphibians, and waterfowl.

Habitat II

Jake Vander Wal 807-768-1854

A community cleanup initiated by the PAC covered 125 km of waterfront in Thunder Bay. An assessment of public involvement in the RAP, and feasibility study to determine an appropriate strategy for combatting the transfer of exotic organisms to Lake Superior via ballast water were undertaken. A demonstration to test an innovative velocity barrier designed to pass fish but block lamprey migration was conducted on the McIntyre River.

NIPIGON BAY

Habitat II - Multi-purpose Breakwall/Marina Guidelines

Ken Cullis 807-768-1826

The RAP Team and PAC have worked closely with the Waterfront Development Steering Committee and project consultant to incorporate environmental components in the design of the breakwall for Red Rock. The first of its kind in Ontario, this standard armour stone breakwall will be overlaid with suitable habitat features to enhance the aquatic ecosystem, provide access to Nipigon Bay, improve aesthetics and create additional recreational opportunities for marina users.

Enhancing Aquatic Habitat to Bring Back the Walleye

Ken Cullis 807-768-1826

Certain fish and wildlife communities, which require minimal human intervention to survive, indicate a well-functioning ecosystem. In Nipigon Bay, habitat restoration, supplemented by stocking, will lead to self-sustaining stocks of walleye. Fisheries and Oceans Canada, the Ontario Ministries of Natural Resources, Environment and Energy, Northern Development and Mines, Tourism, Recreation and Culture, Ontario Hydro, the Town of Nipigon, and the Town of Red Rock are supporting the project.

Stocking - Over 12,000 walleye have been released into the bay - monitoring of these stocks has documented the first successful walleye reproduction in Nipigon Bay since the population collapsed over 30 years ago.

Old Mill - A wetland adjacent to an abandoned sawmill at the mouth of the Nipigon River will be restored - to date the site cleanup has been completed.

Water Management - An optimum water management strategy to address the issue of water level fluctuations will be developed.

Spawning Beds - In the Lower Nipigon River, debris has been removed from historic walleye spawning areas. The spawning beds will be further rehabilitated and techniques to flush silt from the beds will be developed.

JACKFISH BAY

Sediment Restoration - Blackbird Creek

Jake Vander Wal 807-768-1854

As Blackbird Creek flows over the sediments of Moberly Lake, it degrades water quality in Lake Superior. The feasibility of lowering the water level in the lake or reprofiling the water flow to form a natural channel is being examined. Fisheries and Oceans Canada, Ontario Ministries of Natural Resources and Environment and Energy, Lakehead University, and Kimberley Clark Inc. are also funding this project.

ST. MARYS RIVER

Integrated Habitat Remediation for the St. Marys River RAP

Don Hughes 519-371-0420

A comprehensive approach will be used to remediate habitat in the St. Marys River, such that linkages among various elements of habitat are recognized, and actions are coordinated with other river uses to promote efficient deployment of material, resources, and dollars. This project is also supported by the U.S. Army Corps of Engineers, the Ontario Ministries of Natural Resources, Environment and Energy, and Agriculture, Food and Rural Affairs, the Michigan Department of Natural Resources, Fisheries and Oceans Canada, Transport Canada, Parks Canada, Environment Canada's Environmental Conservation Branch, the U.S. Fish and Wildlife Service, the Great Lakes Fisheries Commission, and various local naturalists clubs and industries.

LAKE HURON

SEVERN SOUND

Penetanguishene Harbour Shore Zone Cleanup & Habitat Restoration Keith Sherman 705-526-7809

A two hectare area of shoreline at the south end of Penetanguishene Harbour has been identified by the RAP as providing poor habitat and requiring remediation. The wood debris was removed and will be disposed of through the demonstration of innovative and cost-effective removal, handling, and recycling technologies. Fish and wildlife habitat will be restored at this site as well as recreational use of the beach. The Town of Penetanguishene and the Severn Sound RAP are also funding this project.

Rehabilitating Tributaries to the Sound

Robin Craig 705-725-7547

Six river systems flow through agricultural areas to Severn Sound. Problems of elevated levels of phosphorous, bank erosion and loss of fish and wildlife habitat caused by agricultural activities, are being addressed by controlling live-stock access to watercourses through fencing and improving stream crossings; tree planting; stabilizing eroded sections of river banks; and, where possible, arranging alternate water sources for livestock. The Ontario Ministries of Natural Resources, Environment and Energy, and Agriculture, Food and Rural Affairs, Agriculture and Agri-Food Canada, jobsOntario, Midland Rotary Club, Tiny Township, local landowners, and community volunteers also support this project.

COLLINGWOOD HARBOUR

Collingwood Harbour Habitat Enhancement Project

Rick Grillmayer 705-444-6076

To increase the biotic integrity of fish and wildlife populations using an ecosystem approach, pike spawning habitat was created, smallmouth bass spawning substrates were established, reefs were strategically placed, and habitat creation for amphibians, reptiles and birds is being designed. Supporting agencies include the Collingwood Harbour RAP/PAC, Canadian Coast Guard, Fisheries and Oceans Canada, Ontario Ministry of Natural Resources, Nottawasaga Valley Conservation Authority, Shell Environment Fund, Collingwood Senior League, and the Georgian Triangle Anglers Association.

Black Ash Creek Rehabilitation and Erosion Control

Rick Grillmayer 705-444-6076

Eleven work projects have been implemented as a result of watershed evaluation in 1992. Field methods used included stream bank and escarpment slope stabilization, vegetated buffer strip development, and intensive instream habitat rehabilitation. Partners in this project include the Ontario Ministries of Natural Resources, Environment and Energy, and Agriculture, Food and Rural Affairs, Fisheries and Oceans Canada, Environment Canada's Environmental Partners Fund, the Town of Collingwood, the Nottawasaga Valley Conservation Authority, Collingwood Rotary Club, Collingwood Collegiate Institute, the Collingwood Harbour RAP/PAC and local landowners.

ST. CLAIR RIVER

Chenal Ecarte/Sydenham River Wetland Recreation

Don Hector 519-354-7340

Most of the original wetland area has been lost due to agricultural and residential development. A number of candidate sites and wetland re-creation techniques will be explored including breaching of existing flood protection dykes to allow natural flooding of target areas. Negotiations for the purchase of 75-125 hectares slated for wetland creation have been initiated by the partners of the Eastern Habitat Joint Venture. Government and special interest groups participating in this venture include Ontario Ministry of Natural Resources, Environment Canada's Environmental Conservation Branch, St. Clair Region Conservation Authority, Ducks Unlimited, Eastern Habitat Joint Venture, Nature Conservancy of Canada, and Wildlife Habitat Canada.

Stag Island Habitat Rehabilitation

Don Hector 519-354-7340

An existing provincially significant wetland will be protected and expanded in the upper end of the St. Clair River. Indigenous aquatic vegetation will be re-established in the wetlands while associated upland areas may be revegetated in Tallgrass Prairie. Because of its location in the middle of the river, there is an opportunity to make this a cooperative international project. Potential funding sources include Ontario Ministry of Natural Resources, Environment Canada, U.S. Army Corps of Engineers, and the Michigan Department of Natural Resources.

Lake St. Clair Rehabilitation

Gary McCullough 519-681-0486

The feasibility of rehabilitating the Big Point marshes on the eastern shore of Lake St. Clair will be investigated in order to both rehabilitate and secure this 870 hectare, internationally-important wetland. The project promotes innovative technology for in-lake revegetation, which requires wave energy and ice scour affect abatement. Ducks Unlimited, Environment Canada's Environmental Conservation Branch, the Ontario Ministry of Natural Resources, and the Big Point Club are also supporting this project.

DETROIT RIVER

Windsor Salt River Front Rehabilitation

Don Hector 519-354-7340

This project may encompass up to 1 km of shoreline along the Detroit River. A shoreline park, with a central marsh area and excavated channel to improve water flow will be created, following the excavation of salt-contaminated soil. Offshore islands will also be constructed to increase fish habitat. The Canadian Salt Co., Ontario Ministry of Natural Resources, Essex Region Conservation Authority, and U.S. Army Corps of Engineers are also supporting this project.

LAKE ERIE

Wetland Rehabilitation - Dunnville Marshes

Jeff Robinson 519-681-0486

Through this project, 400 hectares of wetlands at the mouth of the Grand River at Lake Erie will be managed by the Grand River Conservation Authority. The marshes will be restored to improve fish spawning and rearing habitat, waterfowl and other migratory bird habitat, and to enhance biodiversity. Emphasis will also be placed on encouraging community level stewardship of wetlands. Partners include the Ontario Ministry of Natural Resources, Nature Conservancy of Canada, Wildlife Habitat Canada, Ducks Unlimited, Environment Canada's Environmental Conservation Branch, Fisheries and Oceans Canada and local stakeholders.

Long Point Bay Rehabilitation

Jeff Robinson 519-681-0486

This project uses a community-based approach to attain the goal of sustainable development. A Community Action Plan has been developed, and the feasibility of restoring natural processes to sections of shoreline is being investigated. Environment Canada's Environmental Conservation Branch, the Ontario Ministry of Natural Resources, Long Point Region Conservation Authority, and Long Point Biosphere Reserve Committee are also supporting this project.

Rondeau Bay Watershed Rehabilitation

Janet Planck 905-336-6282

This project develops a community-based, integrative ecosystem approach to fish and wildlife habitat rehabilitation activities in a watershed which has suffered significant habitat losses due to historical land use practices. Through this project, alternative farming practices and mitigation of sewage problems will be investigated, and rehabilitation and re-creation of high quality fish and wildlife habitat has begun. Environment Canada's Environmental Conservation Branch, Ontario Ministries of Natural Resources and Environment and Energy, Project Tree Cover, Rondeau Provincial Park, University of Guelph and Lower Thames Valley Conservation Authority are also supporting this project.

NIAGARA RIVER

Willoughby Marsh Hydrology/Hydrogeology Study - Habitat Rehabilitation Anne Yagi 905-892-2656

Willoughby Marsh is a provincially significant wetland. The water supply to Willoughby Marsh has been altered by the change in drainage patterns associated with the development of its watershed, which contributes significantly to diminished water quality and the loss of wetland and creek habitat. This project will determine the hydrologic function of Willoughby Marsh in order to restore or enhance this function to improve habitat. The Ontario Ministry of Natural Resources is also funding this project.

LAKE ONTARIO

HAMILTON HARBOUR

Fish and Wildlife Habitat Rehabilitation

Victor Cairns 905-336-4862

Rehabilitation of fish and wildlife communities in Hamilton Harbour is a three-part process; it begins with reducing existing stressors, rehabilitating and creating suitable fish and wildlife habitat, and, finally, restructuring fish and wildlife populations. Major program elements include: rehabilitating the 250 hectare wetland in Cootes Paradise; enhancing the existing pike spawning marshes on Grindstone Creek; improving littoral and deep water habitats along the southwest shore of the Harbour; softening existing hard shores at the LaSalle Park and Canada Centre for Inland Waters; and, creating islands at these two sites to provide sheltered embayment, erosion protection, shallow water fish habitat, and colonial waterbird nesting and loafing habitats. To date, Fisheries and Oceans Canada, Ontario Ministries of Environment and Energy and Natural Resources, Royal Botanical Gardens, Waterfront Regeneration Trust, City of Hamilton, City of Burlington, Environment Canada - Partners Fund, Halton Region Conservation Authority, Hamilton

Region Conservation Authority, Hamilton Harbour Commissioners, LaSalle Marina Association, Burlington Boating and Sailing Club, McMaster University, Brock University and the Hamilton Naturalists have supported the project. A large number of private and corporate citizens have also contributed through Project Paradise.

Watershed Stewardship

Bruce Duncan 905-525-2181

The goal of this project is to protect, enhance, and restore the streams and environmentally significant natural areas of the Hamilton Harbour watershed through developing an educated, empowered group of private landowners. Approximately 1200 landowners will be contacted. Environment Canada's Environmental Partners Fund, the Hamilton and Halton Region Conservation Authorities, the Richard Ivey Foundation, the Hamilton Foundation, the Laidlaw Foundation, Canada Trust's Friends of the Environment Foundation, the Bay Area Restoration Council, and the Ontario Ministry of Natural Resources are also funding this project.

METRO TORONTO AND REGION

Restoration of Natural Habitat Structure

Richard Strus 905-832-7169

This project will help to restore structural complexity to sheltered warmwater habitats along the Toronto waterfront, which, when combined with activities to restore water quality in the Metro Toronto and Region AOC, will help to restore self-sustaining fish and wildlife populations to the area. Partners include the Ontario Ministries of Natural Resources and Environment and Energy, Metro Toronto and Region Conservation Authority and Metro Toronto Department of Parks and Recreation.

Forested Watersheds Coordination and Monitoring

Richard Strus 905-832-7169

Reforestation activities on floodplains and streambanks through the Metro Toronto and Region AOC will be coordinated and facilitated through this project. The long-term effects of these reforestation activities will also be monitored and evaluated, including improvements in stream ecosystem health. Partners include the Ontario Ministries of Natural Resources and Environment and Energy, Metro Toronto and Region Conservation Authority and Metro Toronto Department of Parks and Recreation.

Lower Don Demonstration Habitat Marsh

David Stonehouse 416-392-1255

A small three hectare demonstration habitat wetland will be constructed in the lower Don River Valley. This project will provide the opportunity to learn more about the technology of constructing wetlands in Ontario's most urban environment, and serve as an ideal tool to promote public awareness of the importance of wetlands. The City of Toronto Department of Public Works and the Environment is acting in a project management capacity. The Canada-Ontario Infrastructure Program, the Metro Toronto and Region Conservation Authority, Friends of the Environment Foundation (Canada Trust) and Ontario Ministry of Natural Resources are also funding this project.

A Home for the Common Tern

Hans Blokpoel 613-952-2410

Common terns at the Toronto Waterfront have been declining sharply in numbers due to encroachment of their nesting areas at the Eastern Headland, by nesting gulls and vegetation. Four rafts were built in 1990 as alternative nesting habitat for the terns. These rafts were installed and monitored at TommyThompson Park on the Leslie Street Spit each year since 1990. Over 170 fledglings were produced in the first year, and more than 250 in each of the following years. This project was carried out by Environment Canada's Environmental Conservation Branch and the Metropolitan Toronto and Region Conservation Authority.

Habitat Rehabilitation on the Toronto Waterfront - Pilot Projects

Gord MacPherson 416-661-6600

The Metro Toronto and Region Conservation Authority has undertaken a number of innovative rehabilitation projects at various locations along the Toronto waterfront. The projects are also supported by the Ontario Ministries of Environment and Energy and Natural Resources, and the Municipality of Metropolitan Toronto.

Toronto Islands - Fish access to a "put and take" trout pond was created by breaching a dyke in several places. Channels were also created for northern pike spawning, and a term nesting raft installed.

Bluffers Park - Wetland creation and structural fish habitat creation were undertaken at this site.

Ashbridge's Bay - Creation of structural habitat for fish.

Mimico Creek - Wetland creation in an embayment at the mouth of Mimico Creek.

Rouge River Marsh - Shoreline naturalization and pike habitat rehabilitation.

Colonel Sam Smith Park - Habitat improvement by creating a wetland in an existing pond, as well as creating a wetland in the boat basin. Plans to create mudflats for shorebirds are being designed.

OSHAWA

Rehabilitate and Showcase Oshawa Second Marsh

Nancy Patterson 416-954-5620

The Oshawa Second Marsh is rare, since it is one of the few remaining Lake Ontario shoreline wetlands adjacent to a large urban centre. Habitat islands and nesting boxes will be constructed to increase wildlife populations and biodiversity. In addition, re-opening the western outlet and removing the log jam from Farewell Creek will improve water circulation. Environment Canada's Environmental Conservation Branch, The City of Oshawa, General Motors of Canada Ltd., Friends of Second Marsh, Waterfront Regeneration Trust, Ontario Federation of Anglers and Hunters, Southern Ontario Big Game Hunters, Westmount Kiwanis, Parkwood Rotary, Central Lake Ontario Conservation Authority, Nature Conservancy, the Ontario Ministries of Natural Resources and Environment and Energy are partners in this project.

BAY OF QUINTE

Black Tern Breeding Enhancement

Hans Blokpoel 613-952-2410

The black tern population of Ontario has declined over the past several decades; in part, the decline is due to alteration and destruction of its marsh habitat. There is a good opportunity to improve the breeding success of black terns in the Bay of Quinte by providing them with artificial nesting platforms. Reproductive success of the terns at both the artificial and nearby natural sites will be determined. Environment Canada's Environmental Conservation Branch is also supporting this project.

Fish and Wildlife Habitat Restoration and Management

Karen Hartley 613-968-3434

Local land use practices and hydrological activities (e.g. flood control, lake level regulation) have destroyed and/or degraded the fish and wildlife habitats in the Bay of Quinte. A management strategy will be implemented to protect remaining wetland areas, and rehabilitate some coastal wetlands to improve the quality of fish and wildlife habitat. Fisheries and Oceans Canada, the Bay of Quinte RAP/PAC, Ontario Ministries of Environment and Energy and Natural Resources are also funding this project.

ST. LAWRENCE RIVER

Pointe Mouillee - Bainsville Bay Habitat Rehabilitation

Mike Eckersley 613-933-1774

This project, together with related work by Ducks Unlimited and the Eastern Habitat Joint Venture of the North American Waterfowl Management Plan, will rehabilitate a significant peninsula wetland complex. The shoreline will be stabilized to prevent erosion and improve circulation in a way to restore nearshore fish habitat. Partners include the Ontario Ministry of Natural Resources, Township of Lancaster, and the Raisin River Conservation Authority.

Lake St. Francis Tributary Restoration

Mike Eckersley 613-933-1774

An ecosystem approach to small stream watershed management on three creeks (Sutherland, Wood, and Gunn) will demonstrate the combination of on-land and in-water activities to return the aquatic habitats to full function. Initial efforts will be directed towards habitat and water quality rehabilitation for Sutherland Creek by focusing on the control of excess nutrients, reducing erosion, restoring water flows, rehabilitating in-stream habitat diversity and re-establishing buffer strips. The Ontario Ministry of Natural Resources and volunteers from the community also support this project.

Habitat Rehabilitation - Littoral Zone Cornwall Waterfront

Mike Eckersley 613-933-1774

Through this project, habitat deficiencies along 6 km of the Cornwall waterfront have been investigated. Appropriate remedial measures to restore aquatic habitat diversity have been designed, including 17 separate remediation projects. In 1993, one of these projects, construction of an artificial island with a substantial underwater reef component to enhance structural diversity, was undertaken. These projects are also funded by the Ontario Ministry of Natural Resources, City of Cornwall, and Raisin Region Conservation Authority.





